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(54) Title: WIRELESS MESSAGING SYSTEM TO MULTIPLE
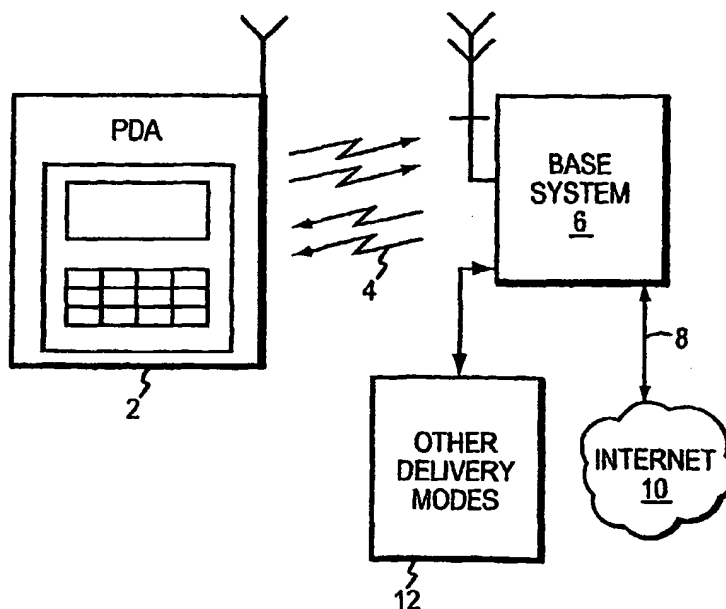
(57) Abstract: A two way wireless hand held PDA device (Fig. 1) that allows remote mobile creation of messages and sending of those messages to recipients via different delivery modes. The recipients can be formed into groups by different criteria, the messages can be created or imported and edited from the remote device, and the messages can be delivered via more than one mode. Status of messages sent and in process is maintained as is account information related to the message and the user. Also messages can be formatted, and can be conditionally sent and receivers can perform automatic actions when specific messages are received. (And actions can be carried out in remote systems based on the responses to messages sent).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WIRELESS MESSAGING SYSTEM TO MULTIPLE RECIPIENTS

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to wireless communications to programmable

5   multiple receivers, and more particularly to a wireless user sending messages to multiple recipients.

Background Information

Thanks to improvements in technology and widespread consumer interest, once-exotic forms of communication have become commonplace, and today the average

10   consumer has access to a broad array of communications services. The Internet and wireless telephony, once the preserve of an elite few, now routinely supplement traditional telephone services and are frequently supplied by the same carriers. Even inexpensive home computers now include facsimile capability. Businesses employing mobile employees can furnish them with economical pagers that incorporate advanced

15   features, such as text transmission and Internet access.

The sheer proliferation of communication options, while greatly improving access and convenience, has engendered problems as well. The existence of a communication channel does not ensure that the recipient of a message will be "listening" to that particular channel at a given time, yet the sender of a message has no way to know this.

20   Indeed, more channels of communication traffic mean more demands on the attentions of potential recipients, who, feeling besieged by the assault of e-mail, voice mail, pages, etc., may simply inactivate some communication devices at different times. Message senders, therefore, are faced with the choice of risking non-delivery of their

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messages, or painstakingly re-transmitting a message on every possible mode of communication modality.

It may also be difficult to transmit the same message to multiple recipients. While a single e-mail message, sent once, can reach an unlimited number of destinations, phone messages must be repeated for each call. Moreover, different recipients may have access to different types of communication channels; perhaps some recipients can be reached efficiently only by e-mail, others by fax, and still others by page.

The integration of communication input devices also raises the prospect of messages having multiple forms of content. Today, a single message may include input from a variety of sources (e.g., voice and text); transmitting such a message by traditional means may be quite cumbersome, involving multiple separate transmissions that must be coordinated and packaged for the receiver to present a coherent message.

U.S. Serial No. 09/496,170, filed on February 1, 2000 and entitled Multi-Mode Message Routing and Management discloses, *inter alia,* a facility for transmission of messages composed on one or more input devices to a single or multiple recipients by means of one or plural communication modalities. Such communication modalities may include, for example, conventional or wireless telephone, facsimile transmission, pager, e-mail, postal mail or courier. Thus, a message may be directed to a single recipient via multiple modalities, such as e-mail and fax, in order to ensure the earliest possible receipt of the message; or it may be directed to multiple recipients by a single modality or by different modalities (e.g., some recipients receive the message by e-mail, others by fax, others by phone). Another application program interface was designed to work with the '170 application, and a provisional patent application entitled Application Program Interface for Multi-Mode Message Handling, serial no. 60/621,188, was filed on 07/21/00. This provisional application is hereby incorporated by reference herein.

The invention disclosed in the '170 application may include functionality for determining whether a message has been received (e.g., telephone and e-mail polling), as well as automatic sender notification upon confirmation of receipt. Moreover, in addition to monitoring messages in order to confirm their receipt, the invention may

facilitate recipients' responses. In this way, the invention can orchestrate multi-question surveys utilizing multiple communication modes; for example, individuals contacted directly can respond immediately, while others can respond later in accordance with instructions delivered to them—e.g., via a web site or by calling a toll-free number. Additionally, the responses to these questions can in turn be automatically delivered to a human or remote system to initiate further actions or system behaviors, thus completing a step in a workflow.

It will be appreciated by those skilled in the art that although the following Detailed Description will proceed with reference being made to illustrative embodiments, the drawings, and methods of use, the present invention is not intended to be limited to these embodiments and methods of use. Rather, the present invention is of broad scope and is intended to be defined as only set forth in the accompanying claims.

SUMMARY OF THE INVENTION

The above limitations and other advantages are provided by a messaging system with an interface for entering and displaying information for a user. One or more recipients are selected from a table and one or mores messages are selected and/or composed for distributing to the recipients. The messages are tracked and are associated or linked to an account for, in a preferred embodiment, proper billing and/or other specific information or instructions related to the account.

The tracking, in a preferred embodiment, will accumulate and retain for later use information with respect to unsuccessful attempts and successful deliveries, the modality of messages sent, recipients, detailed information, e.g. time of day, number of attempts, and the like.

In practice the messages may be sent via one of many modalities, e. g. in a preferred embodiment including regular mail, fax, messenger, e-mail, voice mail, file transfer, etc. In specific instances there may be one or more messages sent to one of more recipients via several of the modalities.

The present invention provides means for prioritizing the modality and the devices used for sending prioritized messages to prioritized recipients.

Means are included, in a preferred embodiment, for editing, deleting, adding, importing, combining and creating both lists of recipients and messages. For ease of use, labels may be assigned and associated with recipient or lists thereof. Also, titles, keywords, or the subject of the messages may be created and used for reference, informational and retrieval purposes.

Messages may be sent with added information and material, e.g. branding, headers, questions, formatting, and boilerplate text (disclaimers, warnings, and the like). And, questions and associated answers and comments with recipient details can be accumulated for later review and analysis.

Triggering conditions may also be established wherein a remote device automatically causes one or more messages to be sent to one or more recipients or groups of recipients via one or more of the associated receiving devices. Moreover, the conditions, like time of day, time zone, area code, status and special information may condition the triggering and the associated response of the present invention.

It will be appreciated by those skilled in the art that although the following Detailed Description will proceed with reference being made to illustrative embodiments, the drawings, and methods of use, the present invention is not intended to be limited to these embodiments and methods of use. Rather, the present invention is of broad scope and is intended to be defined as only set forth in the accompanying claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention description below refers to the accompanying drawings, of which:

FIG. 1 is a block diagram/schematic of a preferred embodiment of the inventive system;

FIG. 2 is a block diagram flow chart;

FIG. 3 is a block diagram of a preferred user interface; and

FIG. 4 is a block diagram of the base system functions;

DETAILED DESCRIPTION OF AN ILLUSTRATIVE EMBODIMENT

In some embodiments, the present invention provides a coordinated application working with the '170 invention delivery engine that will allow users to compose and send messages to multiple receivers from a wireless personal digital assistant (PDA). The present invention is constructed and arranged to operate with operating systems available for such PDA's, for example the Palm, Handspring Visor, Pocket PC, or virtually any operating system (OS) available. In some preferred embodiments the PDA may be part of a cell phone or lap top computer or similar electronic device.

FIG. 1 is a basic system where a PDA 2 communicates bilaterally (sends and receives) 4 via radio, light, sound or infrared or other such waves to a base system 6. The base system comprises the inventive system as described and discussed in the '170 application, with the added capability of communicating with the PDA by means of the PDA's wireless capabilities and the API described in '188. In this case the base system includes means for communicating 8 via the Internet 10 and other delivery means 12. The other delivery means includes the modalities of facsimile, telephone, pager, short message service [SMS], wireless application protocol [WAP] alerts and postal mail.

The '170 is well discussed in the above incorporated by reference patent application and will be discussed briefly herein for clarity. The information communicated from the PDA to the base system is well discussed in '188.

FIG. 2 shows the basic functions employed by a preferred embodiment of the present invention (principally a coordinated application running on a PDA). A first step is to compile a table 14 of addresses of message recipients. Included are names of people and specific delivery types (John's home phone, for example). The table may be contained in a memory associated with the PDA, but may also be remote from, but accessible to, the PDA. The addressee list may be edited 16. Next a message is composed or imported 18 and it may be edited 20. The addressees and the message or messages are sent to the base system 22 according to protocols specified in '188. Relevant

account file information is referenced for bookkeeping purposes . Included as part of

the coordinated application is a means to create and verify new accounts. Once trans-

ferred to the base system, the message(s) are sent via the delivery mode or modes des-

ignated. Prior sent messages are tracked and stored 26 for status purposes.

5

FIG. 3 shows a preferred display panel 30 associated with a preferred wireless

PDA showing the communication path 4 to the inventive system base system 6 as de-

scribed preferably in the '170 application.

10   The touch panel control buttons on the PDA display 30 include buttons to ac-

cess the addressee table 32, a memo pad 34, and commonly found functions 36 on

PDA's including a "to do" list a "date book," a calculator, expense list, a mail list, and

means for starting the coordinated application which orchestrates the communicating

with the base system 38. Of course other types of data selection and entry, as is known

15   in the art, can be used rather than hardware or software buttons.

One preferred embodiment of the present invention enables users to compose

and send messages to multiple recipients on multiple devices from a wireless PDA or

device. The embodiment combines some native functions on the PDA with a custom

20   coordinated messaging application.   It is understood that terms used below, such as

"Address Book," "Memo Pad," and the like are those used in the Palm OS, but are

meant herein generically, and those skilled in the art will understand the functions de-

scribed apply to other PDA OS's. The term "messaging application" refers to the non-

native functions to the PDA which complete the functionality of the preferred embodi-

25   ment.

The following steps and functions outline a preferred embodiment of creating

and sending messages.

A.   Creating and Sending a Message

        1.   Compose a message using the text entry capabilities of the PDA (The Memo
                Pad). Save the message in the PDA's memo storage area.

2. Run the messaging application from the PDA's Main Menu. Select Send Message from the main menu.

3. From within the messaging application, select a distribution list to send to. This distribution list contains a list of recipients and the preferred communications channels for each recipient (See the following section B for a description of a preferred embodiment of creating a distribution list).

4. Again from within the application, select the memo created in Step 1 from the list of memos in the PDA's memo storage area.

5. Set additional message options, including sender account information (login and password for the base messaging system), survey questions, message urgency, callback numbers, escalation rules, etc.

6. Review options and confirm interest in sending the message.

7. Instruct the messaging application to transmit the recipient and message information to the base system, which in turn automatically delivers the message to the recipients on their preferred delivery devices.

8. Receive information back from base system regarding message delivery status.

The following section describes a preferred embodiment for creating distribution lists.

B. Creating Distribution Lists

1. Enter the recipients and corresponding contact information (phone numbers, e-mail addresses, etc) into the PDA's native address book by any number of means native to the PDA.

2. Run the messaging application from the PDA's main menu. Select Manage Distribution Lists from the main menu.

3. Select create new distribution list. Enter a name for the list.

4. From a list of recipients in the PDA's native address book, select each recipients to be included in the list.

5. For each recipient select the devices (contact information) belonging to that person that should be used when this distribution list is selected in the message sending process (you might want to have an e-mail list, and a separate phone list, for example).

Enter a long description of the distribution list.

6. Save the list. It is now available for use in the message sending process.

5

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Tracking of sent messages insures the sender that the messages were sent properly. Below is a description of the steps for tracking messages in the preferred embodiment:

C.   Tracking Messages

1.   Select the messaging application from the PDA's main menu. Select Track Messages from the main menu.

2.   A Track Message page displays a list of the 10 last messages sent with a high level summary for these messages. In the preferred embodiment, this summary information is stored locally on the PDA. Included for each message sent:

Subject

Recipient distribution list name

Number of recipients (not devices)

A Job ID which is a unique reference to an ID stored on the message delivery base system, by which more detailed information can be queried.

Selecting a message from the list requests that more detailed information about the message be gathered from the message delivery base system.

3.   The more detailed information gathered from the base system includes:
Date, subject, recipients, message body
Total number of recipients
Total number of contact methods
Total number delivered
Total number of deliveries in progress
Total number of undeliverable delivery requests
Detailed data about each recipient, delivery attempt, and survey responses.

FIG. 4 shows a preferred embodiment of the main interactive user page 40 for the coordinated messaging application 2. These functions include an interactive page 42 regarding the sending of the message, tracking the messages 44, managing the distribution recipient lists 46, and editing the account information 48.

10   It should be understood that above-described embodiments are being presented herein as examples and that many variations and alternatives thereof are possible. Accordingly, the present invention should be viewed broadly as being defined only as set forth in the hereinafter appended claims.

What is claimed is:

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CLAIMS

1. A messaging system comprising:

    a portable two way wireless messaging device having an interface for entering and displaying information,

        a list or table of recipients for messages,

        means for selecting one or more recipients,

        means for accessing at least one message,

        means for sending at least one message to the selected recipients,

        means for tracking messages, and

        means for associating at least one message with an account.

2. The messaging system of claim 1 further comprising: a list of devices related to each recipient,

        wherein each device defines a modality for receiving at least one message, and

        means for sending at least one message to each device.

3. The messaging system of claim 2 further comprising means for prioritizing the list of recipients.

4. The messaging system of claim 2 further comprising means for prioritizing the list of devices for each recipient.

5. The messaging system of claim 1 further comprising:

        means for storing status information of past messages sent and present messages.

6. The messaging system of claim 1 further comprising means for editing the list of recipients, including adding and deleting recipients and creating lists of recipients.

7. The messaging system of claim 1 further comprising means for creating and editing at least one message.

1   8.   The messaging system of claim 7 further comprising means for adding, sub-

2   tracting, importing, deleting and combining the list of devices.

1   9.   The messaging system of claim 8 further comprising means for prioritizing

2   messages with respect to recipients.

1   10.   The messaging system of claim 1 further comprising means for importing mes-

2   sages and lists of recipients and associated devices.

1   11.   The messaging system of claim 1 further comprising means for labeling or

2   naming the list of recipients.

1   12.   The messaging of claim 1 further comprising means for associating a subject or

2   title with the at least one message.

1   13.   The message system of claim 12 further comprising a search engine for retriev-

2   ing messages or lists.

1   14.   The message system of claim 1 further comprising additional material added to

2   at least one message.

1   15.   The messaging system of claim 14 wherein the additional material includes

2   header and branding artifacts.

1   16.   The messaging system of claim 14 wherein the additional material is different

2   for each recipient and for each receiving device.

1   17.   The messaging system of claim 14 wherein the additional material includes

2   items selected from the items consisting of ad hoc material, questions, and formatting.

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1   18.   The messaging system of claim 14 wherein the additional material includes
2   boilerplate text.

1   19.   The messaging system of claim 14 wherein the additional material includes use
2   of a template.

1   20.   The messaging system of claim 14 further wherein the additional material is
2   dependent upon the recipient and the receiving device.

1   21.   The messaging system of claim 1 wherein the message content depends on the
2   recipient and the receiving device.

1   22.   The messaging system of claim 5 further comprising means for tracking of the
2   status in real time.

1   23.   The messaging system of claim 22 further comprising delivering the status to
2   one of more designated receiving devices.

1   24.   The messaging system of claim 5 further comprising means for delivering an-
2   swers to questions to one or more receiving devices.

1   25.   The messaging system of claim 1 further comprising means for a remote device
2   for triggering the sending of one or more messages to one or more recipients via one of
3   more associated receiving devices.

1   26.   The messaging system of claim 25 further comprising a condition for the trig-
2   gering.

1   27.   The messaging system of claim 26 wherein the condition comprises sending one
2   or more messages based on one of the items selected from the group consisting of time
3   of day, time zone, message content, status, and recent information received.

1   28.   The messaging system of claim 1 further comprising means for receiving a re-

2   sponse to at least one message, and means for causing an automatic action therefrom.

1   29.   A method for sending messages comprising the steps of:

2   entering and displaying information,

3   accessing a list or table of recipients for messages,

4   selecting one or more recipients,

5   accessing at least one message,

6   sending the at least one message to the selected recipients,

7   tracking messages, and

8   associating the at least one message with an account.

1   30.   The method of claim 29 further comprising the steps of: relating a list of devices

2   to each recipient,

3   wherein each device defines a modality for receiving at least one message, and

4   sending at least one message to each device.

1   31.   The method of claim 30 further comprising the step of prioritizing the list of

2   recipients.

1   32.   The method of claim 30 further comprising the step of prioritizing the list of

2   devices for each recipient.

1   33.   The method of claim 29 further comprising the step of storing status informa-

2   tion of past messages sent and present messages.

1   34.   The method of claim 29 further comprising the step of editing the list of recipi-

2   ents, including adding and deleting recipients and creating lists of recipients.

1   35.   The method of claim 1 further comprising the step of creating and editing at

2   least one message.

1 36.   The method of claim 35 further comprising the step of adding, subtracting, im-
2 porting, deleting and combining the list of devices.

1 37.   The method of claim 36 further comprising the step of prioritizing messages
2 with respect to recipients.

1 38.   The method of claim 29 further comprising the step of importing messages and
2 lists of recipients and associated devices.

1 39.   The method of claim 29 further comprising the step of labeling or naming the
2 list of recipients.

1 40.   The method of claim 29 further comprising the step of associating a subject or
2 title with messages.

1 41.   The method of claim 40 further comprising the step of searching and retrieving
2 messages or lists.

1 42.   The method of claim 29 further comprising the step of adding additional mate-
2 rial to messages.

1 43.   The method of claim 29 further comprising the steps of triggering, from a re-
2 mote device, the sending of one or more messages to one or more recipients via one of
3 more associated receiving devices.

1 44.   The method of claim 43 further comprising the step of defining a condition for
2 the triggering.

1 45.   The method of claim 44 further comprising the step of sending the one of more
2 messages based on one of the items selected from the group consisting of time of day,
3 time zone, message content, status, and recent information received.

1   46.   The method of claim 29 further comprising the steps of receiving the status of
2   at least one message, and causing an automatic action therefrom.

1/4
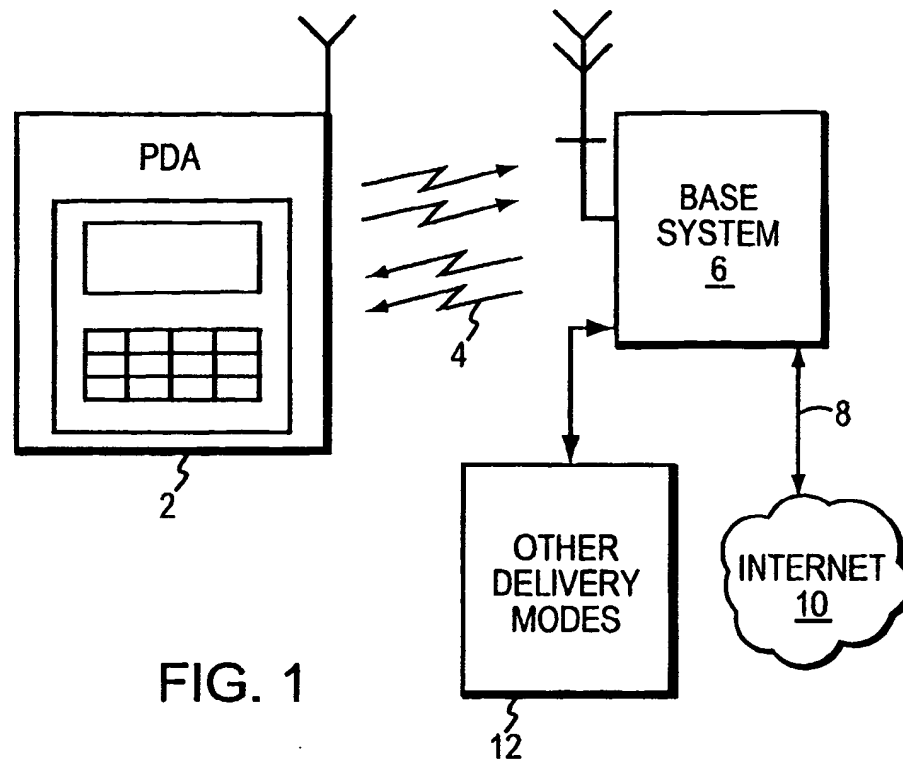
PDA

BASE
SYSTEM
6

4

OTHER
DELIVERY
MODES

INTERNET
10

8

2

12

FIG. 1

COMPILE
ADDRESS —14

16— EDIT

COMPOSE/IMPORT
MESSAGES —18

20— EDIT

SEND TO
BASE SYSTEM —22
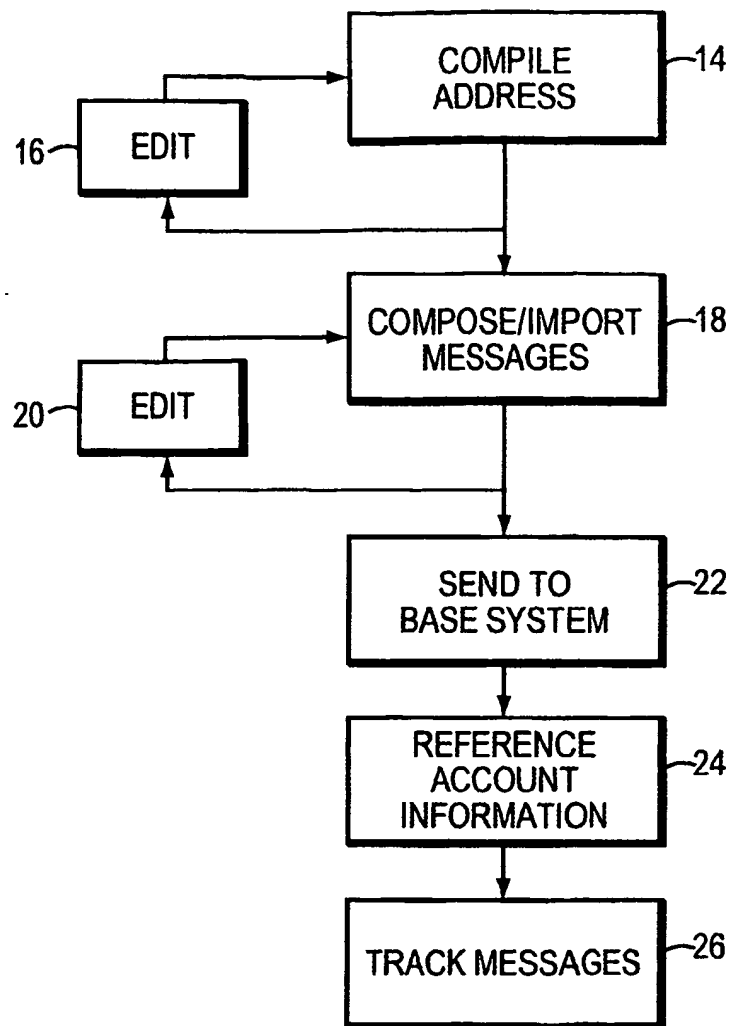
REFERENCE
ACCOUNT
INFORMATION —24

TRACK MESSAGES —26

FIG. 2

HOME PAGE

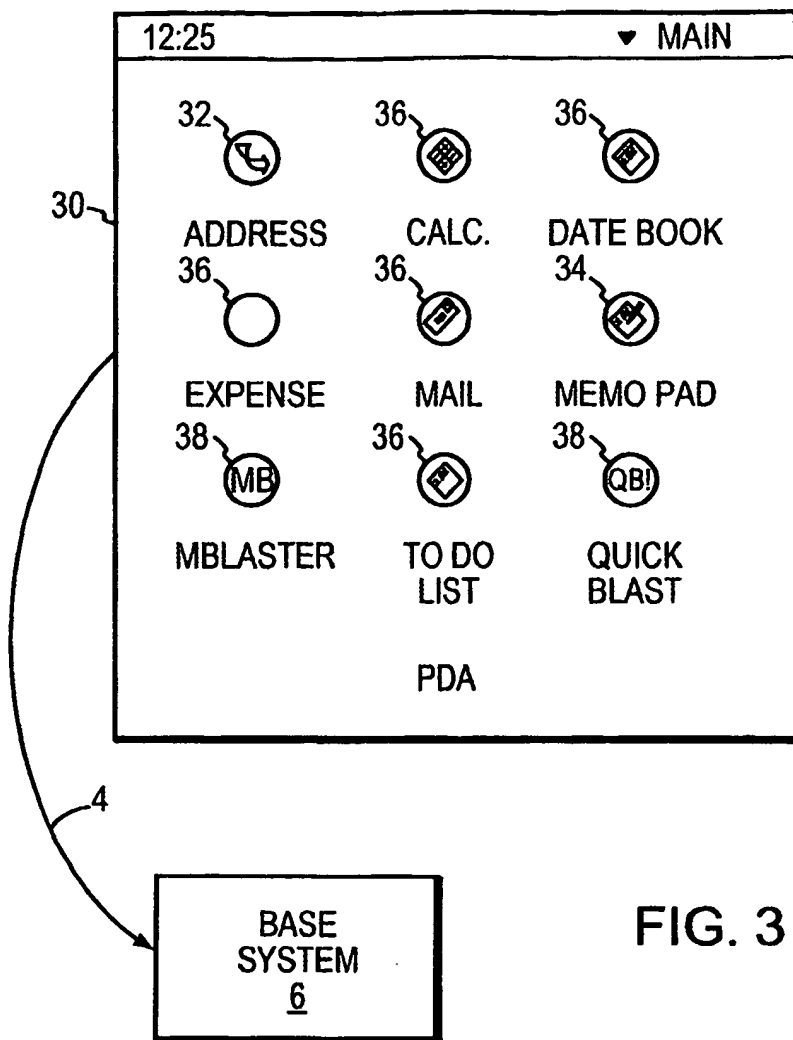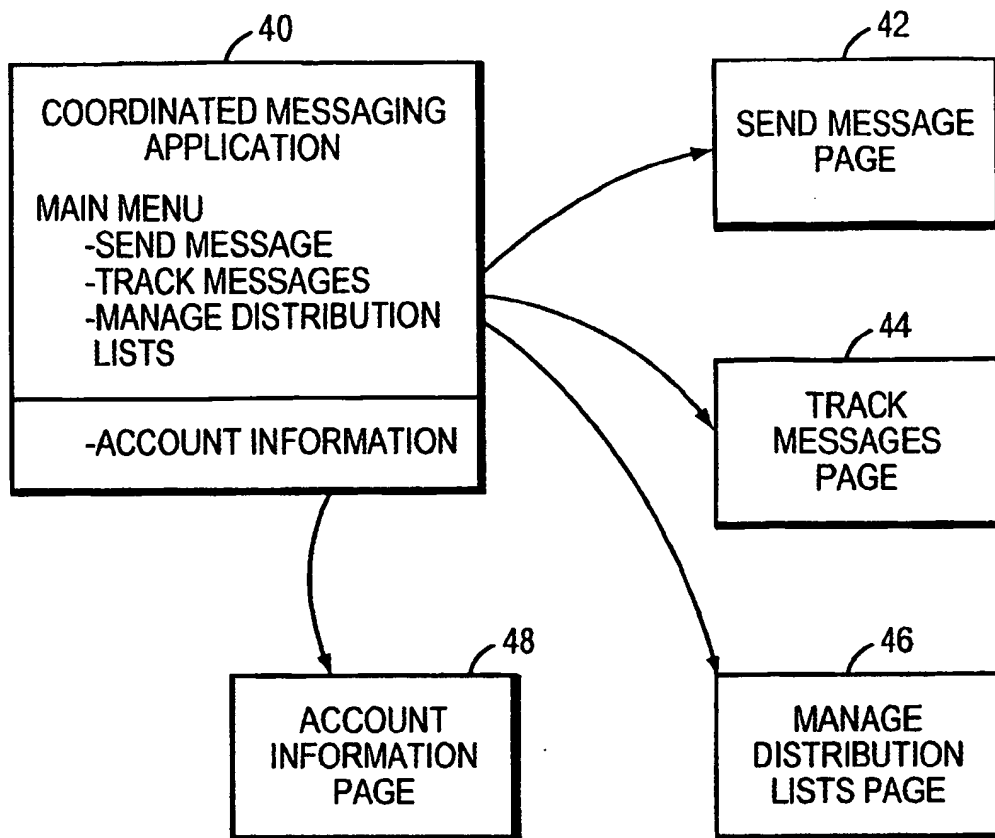FIG. 3

FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/12747

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04B 1/38
US CL : 455/556, 412, 413, 458, 461; 340/825, 442; 370/466.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 455/556, 412, 413, 458, 461; 340/825, 442; 370/466.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,850,594 A (CANNEN ET AL.) 15 DECEMBER 1998, abstract; Fig. 1-15; col. 5, lines 29-44; col. 5, lines 44-55; col. 3, lines 54-56.	1-46
Y	US 5,742,905 A (PEPE ET AL.) 21 APRIL 1998, abstract; Fig. 1; col. 31, lines 28-45; col. 31, lines 52-65; col. 32, lines 23-40; col. 32, lines 53-65; col. 35, lines 10-19.	1-46
Y	US 6,034,970 A (LEVAC ET AL.) 07 MARCH 2000, abstract; Fig. 3-5; col. 5, lines 9-10.	9, 10
Y	US 6,014,429 A (LAPORTA ET AL.) 11 JANUARY 2000, abstract; Fig. 1-3; col. 1, lines 56 to col. 2, line 3; col. 3, lines 38-42.	11
Y	US 5,978,837 A (FOLADARE ET AL.) 02 NOVEMBER 1999, abstract; Fig. 1-3; col. 2, lines 18-30.	12
Y	US 6,021,433 A (PAYNE ET AL.) 01 FEBRUARY 2000, abstract; Fig. 11, Fig. 24b; Fi.g 24d; col. 3, lines 17-42.	15
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Y	US 5,818,447 A (WOLF ET AL.) 06 OCTOBER 1998, abstract; Fig. 1-3; col. 23, lines 8-12; col. 23, lines 22-27.	18, 19
Y	US 5,673,256 A (MAINE) 30 SEPTEMBER 1997, abstract; Fig. 2-7; col. 2, lines 3-6; col. 6, lines 14-24; col. 11, line 66 to col. 12, line 11.	25-27

☒ Further documents are listed in the continuation of Box C.　　☐　See patent family annex.

*	Special categories of cited documents:
"A"	document defining the general state of the art which is not considered to be of particular relevance
"E"	earlier application or patent published on or after the international filing date
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"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&"	document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
08 July 2002 (08.07.2002)	06 AUG 2002
Name and mailing address of the ISA/US 　　Commissioner of Patents and Trademarks 　　Box PCT 　　Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer Daniel Hunter Telephone No. (703)-308-6732

Form PCT/ISA/210 (second sheet) (July 1998)

Continuation of B. FIELDS SEARCHED Item 3:
US, DERWENT.
Search terms: messaging, system, PDA.